

# Recovery Plan Action Status

Plan Name: Florida Torreya

Plan Status: Final

Plan Date: 09-Sep-86

Lead Agency: USFWS

Lead Office: Panama City Ecological Services Field Office

(850)

769-0552 )

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	1	11	Manage existing biological preserves	Ongoing Current	Prior to FY 1995		The Nature Conservancy, U.S. Army Corps of Engineers, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program, City of Chattahoochee, FL	Management: General	Internal Field Assistance	Management plans have been developed and implemented by TSP. Management includes constructing enclosures to prevent damage from deer, restoring adjacent uplands, preventing erosion in the sandhill and slope forests, and exotic species control. The Corps has no written management plan and we do not have information for the TNC population.
Florida torreya (Torreya taxifolia)	1	111	Protect habitat from activities within preserves	Ongoing Current	Prior to FY 1995		The Nature Conservancy, U.S. Army Corps of Engineers, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program, City of Chattahoochee, FL	Management: General	Internal Field Assistance	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	1	112	Protect habitat from activities outside preserves	Ongoing Not Current	FY 2000 - FY 2004		The Nature Conservancy, U.S. Army Corps of Engineers, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program, City of Chattahoochee, FL	Management: Other	Internal Field Assistance	<p>Florida Natural Areas Inventory (FNAI) and TNC have provided management recommendations to the City of Chatahoochee and also have conducted some invasive species plant control on City owned land</p> <p>Management is an ongoing action conducted by TNC, Torreya State Park (TSP), and the Corps. Ms. Pamela Anderson (volunteer) has mulched plants at the Gregory House (TSP). She is monitoring 400+ trees and has gone back several times to each plant collecting data related to stem length and width. According to her results, she has noticed an apparent decline since 2000. Management plans have been developed and implemented by TSP. Management includes constructing enclosures to prevent damage from deer, restoring adjacent uplands, preventing erosion in the sandhill and slope forests, and exotic species control. The Corps has no written management plan and we do not have information for the TNC population.</p>

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	1	12	Determine protection strategies for habitat outside preserves	Ongoing Current			The Nature Conservancy, Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Management: General	Internal Technical Assistance, Volunteer	Mr. Bill Boothe (FL private landowner) has a property with Torreya and has identified GPS locations for over 100 trees. His observations included other nearby properties comprised of about 40-50 trees of 6-15 feet tall. He would like to use private lands as experimental plots & opening up the canopy, using smoke for pest control to limit die off. In general, Ms Anderson and Mr. Boothe are going to try to fence the trees to prevent against deer rubbing, and will continue to record measurements for the trees. They are willing to form the Torreya Conservation Commission at Crooked Creek, FL (see section IV, action 6).
Florida torreya (Torreya taxifolia)	1	121	Implement protection measures	Ongoing Current	FY 2011	FY 2012	The Nature Conservancy, Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program, Individuals/Landowners	Management: Population Monitoring	Species Expert	Installation of protective deer fencing around a significant number of the remaining Torreya trees in the wild will be conducted by the Atlanta Botanical Garden and Florida Park Service. A Cooperative Agreement is being implemented to address this action.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	1	21	Identify pathogen(s) responsible for the decline	Ongoing Current	FY 2009		Universities, USFWS Regional Office 4 - Atlanta, Florida Department of Agriculture and Consumer Services, Division of Plant Industry, U.S. Fish and Wildlife Service - Endangered Species Program	Research	Contract, Species Expert	This is an ongoing action that goes back to 1967. At present, Dr. Lydia Rivera (Univ. of Puerto Rico, 2009) is conducting a soil-borne pathogen survey, emphasizing the detection of Phytophthora spp. She isolated 102 fungi from TSP, FL, and Corps property, GA. Of the trees surveyed, 48 % had root necrosis and stem cankers. She is designing a pathogenicity test associated with potential disease outbreaks. Dr. Jason Smith (Univ. of Florida) is conducting an above-ground plant pathogen study. He isolated numerous fungi from cankers and consistently found an undescribed Fusarium sp.; he is working with a specialist in Japan to describe the new Fusarium species. He proposes to elucidate the disease biology, as well as conductive epidemiological factors and treatment. Aaron Trulock is a graduate student under Smith and will be doing his research on the biology of canker disease of the T. taxifolia.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	2	22	Experiments in disease management in mature cultivated specimens	Unknown			USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	As of this update status of this task is unknown although there has been some work conducted in this area.
Florida torreya (Torreya taxifolia)	2	221	Conduct tests of culture regimens	Ongoing Current			USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Research: Propagation	Species Expert	<p>J. Smith (Univ. of Florida) and collaborators will be conducting independent fungicides tests for stem canker; they might also use lime, varying pH on clonally propagated material.</p> <p>The Atlanta Botanical Garden is collaborating with Dr. Jerry Pullman of Georgia Institute of Technology to develop techniques for producing clonal lines of T. taxifolia through embryogenesis in tissue culture.</p>
Florida torreya (Torreya taxifolia)	2	222	Investigate mycorrhizal relations	Ongoing Current	FY 2010	FY 2012	U.S. Department of Agriculture, Universities, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Research: Management Techniques	Contract	Dr. Melissa McCormick (Smithsonian Environmental Research Center) proposed to investigate the type of mycorrhizal association formed by T. taxifolia, identify the fungi forming the association, and quantify the degree of colonization. This investigation will be initiated in September 2010.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	3	23	Develop protocol for blight control experiments on seedlings and cuttings	Ongoing Current	Prior to FY 1995		USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Arnold Arboretum collected 2,000 cutting from over 166 trees at 14 sites. Atlanta Botanical Gardens has also collected seedlings from Torreya State Park and TNC Bluffs and Ravines Preserve. However, they have not published any protocol.
Florida torreya (Torreya taxifolia)	2	24	Maintain good sanitation on cultivated trees	Ongoing Current	Prior to FY 1995		USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program, Individuals/Landowners	Management: Disease Control	Internal Field Assistance	Botanical gardens are implementing this task. However no coordinated effort has been made to determine which botanical gardens may be implementing or the status of this of this task.
Florida torreya (Torreya taxifolia)	3	25	Water, cut back, and/or transplant trees on dry sites	Unknown			USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	3	3111	Locate seed bearing cultivated trees	Unknown			Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program, Individuals/Landowners	Research: Population Surveys	Internal Field Assistance	<p>Seed-bearing trees are rare; most of the wild population persists as stump sprouts. Currently, in wild populations there are six plants producing cones. Several botanical gardens have seed-bearing trees (Atlanta Botanical Garden (ABG), GA; Callaway Garden, GA; Biltmore Gardens, NC).</p> <p>Several botanical gardens have seed-bearing trees (Atlanta Botanical Garden (ABG), GA; Callaway Garden, GA; Biltmore Gardens, NC). After 10 years in cultivation as part of the conservation collection at ABG, a large proportion (&gt;60) of the Torreya trees began producing reproductive cones. Seedlings from these mature plants also became reproductive within 10 years. According to R. Determann (Conservation Director, Atlanta Bot Garden), the Callaway Garden has a partial duplicate set of ABG cutting inventory trees that had produced seeds, however, they are in decline.</p>

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	3	3112	Protect seed from frugivores	Unknown			Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Task duration: 2-10 yrs  Most trees do not produce cones in the wild population. In ex situ collections, cones on female seed bearing trees are caged at the Atlanta Bot Garden and at one of the safeguarding locations at Georgia Department of Natural Resources Smithgall Woods/Dukes Creek Conservation Area to protect seeds and facilitate collection for propagation.
Florida torreya (Torreya taxifolia)	3	31121	Cover trees	Partially Complete	Prior to FY 1995	Prior to FY 1995	USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Research: Predation	Internal Field Assistance	Task duration: 1-10 yrs
Florida torreya (Torreya taxifolia)	3	31122	Experiment with rodent repellants	Not Started			USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Task duration: 1-2 yrs



Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreyia (Torreya taxifolia)	3	3113	Harvest cultivated seed	Ongoing Current	FY 2000 - FY 2004		Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Management: Propagation	Internal Field Assistance	Atalanta Botanical gardens has been implementing. Task duration: 2-10 yrs
Florida torreyia (Torreya taxifolia)	2	3121	Search for seed bearing wild trees	Ongoing Current	FY 2000 - FY 2004		The Nature Conservancy, Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Research: Population Surveys	Internal Field Assistance	FDEP has been conducting surveys on recently acquired land.
Florida torreyia (Torreya taxifolia)	2	3122	Harvest seed from wild trees	Not Started			The Nature Conservancy, Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Task duration: 1-10 yrs

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	2	321	Arrange seed exchange	Ongoing Current			Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	According to R. Determann (Director Conservation, Atlanta Bot Garden), ABG has 500-600 seeds in some years that they propagate and grow in the conservation collection at the garden, and in some cases disseminate to other botanical gardens, to universities for study, use for outreach (display), and long-term storage. The Biltmore Gardens harvested 300 seeds in 2009 and were distributed to interested parties ( <a href="http://www.torreya-guardians.org/2009-seeds.html">http://www.torreya-guardians.org/2009-seeds.html</a> ).
Florida torreya (Torreya taxifolia)	2	322	Establish seedling production programs	Unknown			Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	The ABG has the largest collection of seed bearing plants. About 60-65 trees have produced seeds that have been propagated, shared with our conservation or research partners. Jerry Pullman (Georgia Institute of Technology) in collaboration with ABG is working on somatic embryogenesis, important for producing disease-free seedlings/trees.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreyia (Torreya taxifolia)	2	3221	Obtain and grow seed at Maclay	Unknown			Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	
Florida torreyia (Torreya taxifolia)	2	32211	Assess results	Unknown			USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	
Florida torreyia (Torreya taxifolia)	2	3222	Initiate other programs	Unknown			Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Task duration: 1-5 yrs
Florida torreyia (Torreya taxifolia)	2	32221	Enlist institutions	Ongoing Current	Prior to FY 1995		Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Management: Propagation	Internal Field Assistance	Several Botanical gardens have been sucessfully growing this plant including but not limited to, Atlantal Botanical gardesn, Biltmore estate and the Arnold Arboretum Task duration: 1-5 yrs
Florida torreyia (Torreya taxifolia)	3	32222	Arrange cooperation among individuals	Not Started			Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program, Individuals/Landow ners	Work type not yet selected	Labor type not yet selected	Task duration: 1-5 yrs

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	1	331	Establish program to obtain cuttings	Not Started			The Nature Conservancy, Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	1	332	Establish cuttings	Ongoing Current			Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	<p>As part of the Center for Plant Conservation program, 2,622 stem cuttings were collected from 166 trees at 14 sites in the late 1980s to the early 90s. Rooted cuttings were sent to 10 institutions (including the Bok Tower Garden, Lake Wales, Florida) for safeguarding but this material posed several challenges: could carry unknown pathogens responsible for the decline of this species; and the cuttings were mainly collected from lateral branches and in cultivation they often display plagiotropic architecture (they have dominant lateral growth and end up looking like shrubs). The ABG has switched to propagating cuttings made from ¿leaders¿- the rapidly growing apex (top) of a tree. This process forms upright plants of about two-feet tall in about two years.</p> <p>The Bok Tower Garden (BTG) received 97 plants from Arnold Arboretum on 1991. BTG staff actively propagated clones and annually reported growth and mortality data to Mercer Arboretum,</p>

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
										<p>Arnold Arboretum and to the Center for Population Biology. At present, BTG has 15 plants located on the Garden grounds as permanent plantings.</p> <p>The ABG has been propagating <i>T. taxifolia</i> in its conservation collection for more than 20 years and has increased the number of trees in its collection to more than 1200 stems. This is the largest ex-situ collection of Florida <i>Torreya</i> outside the natural range of the species (and potentially as large as the remaining wild population). After more than 20 years since the ex situ collections were established at ABG, they have the first reproductive offspring.</p>
Florida torreya ( <i>Torreya taxifolia</i> )	3	34	Conduct grafting experiments	Not Started			USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	<p>The recovery plan suggests grafting [asexual propagation where the tissues (vascular cambium) of one plant are fused with those of another] with <i>T. californica</i>. However, <i>T. californica</i> is exhibiting some issues with cankers caused by pathogens with a different <i>Fusarium</i> species which is killing the cambium.</p>

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreyia (Torreyia taxifolia)	2	4	Investigate ecological requirement	Not Started			The Nature Conservancy, Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	
Florida torreyia (Torreyia taxifolia)	3	41	Study the ecological physiology of torreyia	Ongoing Current			Universities, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Koehn and Doudrick (1999) investigated diurnal patterns of chlorophyll fluorescence and CO2 fixation. The study indicated that plants recovered from daily periods of high light and temperatures, suggesting that they may tolerate higher light conditions in their native habitat. Tree rings studies somewhat indicated that growth in T. taxifolia is light limited (Schwartz and Herman 1999). Herman and Schwartz (1997) conducted shade and open canopy treatments on TNC Apalachicola Bluffs, TSP, and the Corps property. Mortality was high, and no patterns associated with light were detected when data was pooled across sites.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreyia (Torreya taxifolia)	3	42	Evaluate the native habitat	Ongoing Current	FY 2000 - FY 2004		The Nature Conservancy, Universities, Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Research: Population Surveys	Internal Field Assistance	Since 2008, the ABG in collaboration with TSP and University of Florida have conducted an updated survey of habitat conditions and population status with the natural range of T. taxifolia. They have georeferenced and collected information on approximately 150 trees from locations throughout the natural range of T. taxifolia. Future efforts should evaluate the success of habitat management experiments in improving the health of in situ trees.
Florida torreyia (Torreya taxifolia)	3	43	Describe climate and neighboring vegetation of healthy cultivated trees	Unknown			Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	



Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	3	44	Study population dynamics	Ongoing Current			Universities, Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Current status surveys conducted between 2008 & 2010 in collaboration between the ABG, TSP, and the University of Florida have documented the health and size of several trees. All of the plants were stem sprouts and none of the plants had reached reproductive maturity. No seeds or seedlings were found. No demographic studies have been done.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreya (Torreya taxifolia)	1	5	Establish experim. Collections outside native habitat	Ongoing Current	Prior to FY 1995		Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Georgia: The ABG and the Georgia Department of Natural Resources outplanted 19 individuals of T. taxifolia at the Smithgall Woods in White County in north Georgia. The purpose of the Smithgall Woods collection and two additional off-site plantings (Blairesville, GA and Vogel State Park) were to establish safeguarding populations of Torreya to conserve material that had been propagated at the ABG in backup collections at more than one location. The material planted at Smithgall Woods was propagated from all Georgia source population material (Army Corps. Of Engineers, site at Woodruff Dam, Lake Seminole, in Georgia). The trees have grown quite large and are now reproductively mature producing male and female cones annually. Most of the plants were placed in full sun and they are quiet healthy. The trees at Vogel State park are smaller than those at Smithgall Woods and have not yet reached reproductive maturity.  North Carolina: In 1939 nearly a dozen specimens

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
										of <i>T. taxifolia</i> were planted at the Biltmore Gardens; 31 seedlings were planted in 2008 at two locations near Waynesville; and 10 seedlings were planted at Bt. Highlands and Franklin ( <a href="http://www.torreyaguardians.org/north-carolina.html">http://www.torreyaguardians.org/north-carolina.html</a> ).
Florida torreyia ( <i>Torreyia taxifolia</i> )	2	51	Inventory plantings at botanical gardens	Not Started			Georgia Department of Natural Resources, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	
Florida torreyia ( <i>Torreyia taxifolia</i> )	2	52	Supplement existing plantings	Unknown			Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Various Botanical gardens may be implementing this task. However, no effort has been made to determine
Florida torreyia ( <i>Torreyia taxifolia</i> )	2	53	Establish new plantings	Unknown			Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	Task duration: 1-10 yrs
Florida torreyia ( <i>Torreyia taxifolia</i> )	2	6	Place seed in long term storage	Not Started			U.S. Department of Agriculture, Center for Plant Conservation, USFWS Regional Office 4 - Atlanta, U.S. Fish and Wildlife Service - Endangered Species Program	Work type not yet selected	Labor type not yet selected	

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Florida torreyia (Torreyia taxifolia)	2	7	Reestablish torreyia in its native habitat	Ongoing Current	FY 2000 - FY 2004		The Nature Conservancy, Georgia Department of Natural Resources, USFWS Regional Office 4 - Atlanta, Florida Department of Natural Resources, Division of Recreation and Parks, U.S. Fish and Wildlife Service - Endangered Species Program	Management: Reintroduction	Internal Field Assistance	In 2002, the ABG in collaboration with Florida State Park Service reintroduced seedlings propagated from seed produced from the cuttings collected by the Arnold Arboretum of Harvard University in 1989. The cuttings were obtained from the wild population at TSP. The plants were reintroduced into ravines where T. taxifolia had been extirpated. Sixty seedlings were subjected to four different treatments (fungicide, fertilizer only, fertilizer and lime, and control) for determining the optimum reintroduction techniques for this species. Only 34.5 % survived after one year post planting. No further information is available.